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Application No. 10/517,011
Filed: July 7, 2005
TC Art Unit: 1731
Confirmation No.: 2774

REMARKS

The Specification has been amended per the Examiner's request to correct misspellings and typographical errors.

Claims 2-3, 7-17, 27, 31 and 35 have been amended and are pending together with claim 23, which remains as previously presented. Claims 1, 4-6, 18-22, 24-26, 28-30 and 32-34 have been withdrawn, without prejudice. No new subject matter has been introduced and the claim amendments are supported by the language of the original claims.

Claims 2-3 and 7-8 have been rewritten as independent claims, in each case incorporating the language from withdrawn claim 1, from which these claims earlier depended.

Claims 2-3, 9-10, and 35 have been amended to remove the phrase to which the Examiner had objected: "...~~if necessary further in the presence of a necessary amount of a water soluble inorganic salt.~~" Also, from all the amended claims is removed the phrase "~~and/or a modified polyalkylenimine~~."

Claims 11-17 have been amended to recite "A use of ..." in place of "~~A method of using~~...", to exclude dependence on claim 1, now withdrawn, and to recite "[paper]-making raw material" in place of "[paper]~~stuff~~."

Claim 27 is amended to improve its dependence from currently amended claim 2.

These amendments and additional minor amendments to the claims are discussed below with regard to Examiner's objections and rejections.

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Objections under Section 1.75(c)

Claims 4-6, 18-22, 24-26, 28-30 and 32 are now withdrawn, inter alia, making the objection regarding the general formulae 4-7 moot as to these claims. Claims 11-17 no longer depend from these claims to which the objection was drawn. Therefore, these objections are overcome.

Rejections under Section 112

As mentioned above, the "if necessary ..." phrase has been deleted from claims 2-3, 9-10 and 35, thus overcoming the rejection on this point.

Claim 5 has been withdrawn, thus mooting the rejection.

In claims 11-15, "paper stuff" has been replaced by "papermaking raw materials" to overcome this ground for rejection.

In claims 3 and 35, the correspondence of categories of ionicity between dependent and independent claims, which raised the Examiner's concern with regard to antecedent basis, has been addressed by amendment, such that this ground for rejection is also overcome.

Rejections under Section 103(a)

The Examiner rejected claims 1-2, 4, 7-8, 11-14, 16, 18, 23, 27 and 31 over Buckman '269 in view of Buckman '542 and further in view of Shing. Applicant respectfully traverses this rejection, for the reasons that follow.

The rejection is moot with regard to claims 1, 4, 16 and 18, with these claims withdrawn.

The water-soluble polymer dispersion according to the

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present invention, as claimed in amended claims 2 and 3, has a feature that an ionic monomer is polymerized into an ionic polymer particle in the presence of polyalkyleneimine, and in claims 7 and 8 the water-soluble polymer coexists with a polyalkyleneimine in the water-soluble polymer dispersion. This specific feature produces low viscosity dispersion (See, Specification at page 10, lines 20-32).

Low viscosity of dispersion of the present invention as claimed is shown in Table 2 at page 26. In Table 2, viscosity of dispersion is high and molecular weight is low in Comparative Examples 1 to 5 of the present invention, which correspond to Example 1 of Table 2. That is, Example 1 of the present invention contains a cationic polymer polymerized in the presence of polyethyleneimine, while Comparative Example 1 to 5 of the present invention contains a cationic polymer polymerized in the absence of polyethyleneimine. And, in the present invention as claimed, polyalkyleneimine is used as a dispersion medium for dispersion polymerization. Even if polyalkyleneimine is used as a dispersion medium, it is not inert for dispersion polymerization, since an obtained dispersion has a lower viscosity and an obtained polymer has a higher molecular weight than those for a dispersion medium of the prior art.

In addition, the polyalkyleneimine used does not have to be removed from the reaction system after completion of dispersion polymerization, because the remaining polyalkyleneimine itself is useful as an additive for papermaking.

As to Buckman '269, although the cationic polymer Example

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1 of that reference and the nonionic polymer in its Example 4 are admixed together in its Example 6, those polymers are separately polymerized (see, Example 6 of Buckman '269, at column 8, lines 1-29). Further, polyethyleneimine is not present at all.

With regard to Buckman '542, although methanol, amine and epichlorohydrin are reacted to a polymeric material, polyethyleneimine is not present at all (see, its Example 1, column 7, lines 39-61).

As to Shing (USP 6,217,778), anionic or nonionic polymers are produced in its Examples, but no polyethyleneimine or its derivative is used in the preparation of those polymers in its Examples.

As to Honig (USP 5,274,055), cationic polymers are produced in column 9 line 50 to column 12, line 60, but no polyethyleneimine is used in the preparation of those polymers.

As to Pudney (USP 5,912,306), though a cationic polyamine is produced, monomers of formulae 1 to 3 are not polymerized therein. Further no polyethyleneimine is used in the preparation of those polymers in its Examples.

Even combining all the features of the above references, the references neither disclose nor suggest Applicant's feature in claims 2 and 3, that an ionic monomer is polymerized into an ionic polymer particle in the presence of polyalkyleneimine or Applicant's feature in claims 7 and 8 that the water-soluble polymer coexists with a polyalkyleneimine in the water-soluble polymer dispersion. Thus, the important advantages of low viscosity dispersion

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and high molecular weight polymer dispersion cannot be obtained by combining the references. Furthermore, the combination of low viscosity and high molecular weight obtained by using Applicant's dispersion medium is not even suggested in any of these references cited by the Examiner, individually or through combination.

Although polyalkyleneimine and its derivative are referred to Buckman ('542, column 1, lines 36-46), Buckman ('269, column 1, lines 38 to 47) and Pudney (column 2, lines 45 to 50), those are only referred to as additives for papermaking.

Provisional Rejection for double-patenting

With regard to provisional obviousness-type double-patenting, a co-pending Application No. 10/486,379 discloses polyalkyleneimine derivative itself, but does not disclose its use as a dispersion medium for dispersion polymerization at all. Further in Pudney, no polyethyleneimine is used as a dispersion medium for dispersion polymerization in the preparation of polymers in its Examples as above stated. For this reason, the Applicant respectfully traverses this provisional grounds for rejection of claims 2 and 7, 11-12 and 14. Claims 4-6 are withdrawn, thus mooting the rejection as to these claims

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SUMMARY

Claims 2-3, 7-17, 23, 27, 31 and 35 are pending. Claims 2-3, 7-17, 27, 31 and 35 have been amended, while claim 23 remains as previously presented. Claims 1, 4-6, 18-22, 24-26, 28-30 and 32-34 have been withdrawn, without prejudice. Applicant respectfully urges that the pending claims are in condition for allowance, which is here requested.

The Examiner is encouraged to telephone the undersigned attorney to discuss any matter that would expedite allowance of the present application.

Respectfully submitted,

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